

<The Amendment under PCT Article 34 made on March 17, 2006>

Written Amendment

(Amendment made based on Article 11 of Law Concerning the International Application of the Patent Cooperation Treaty and Related Matters, equivalent to Article 34 (2) (b) of Patent Cooperation Treaty)

To Commissioner of the Patent Office  
(To Examiner Kouichi HOSHINO)

1. Indication of the International Application

PCT/JP2005/002794

2. Applicant

Name: SHARP KABUSHIKI KAISHA

Address: 22-22, Nagaike-cho, Abeno-ku, Osaka-shi,  
Osaka 545-8522 JAPAN

Country of nationality: JAPAN

Country of residence: JAPAN

3. Agent

Name: 11233 Patent Attorney FUJIMOTO Eisuke

Address: c/o Fujimoto Patent & Law Office  
Room 317, Sanno Grand Building 3F.,  
14-2, Nagata-cho 2-chome, Chiyoda-ku, Tokyo  
100-0014 JAPAN

4. Object to be amended

(1) Claims

5. Content of the amendment (cf. Appended paper)

- 5 (1) Claim 1, line 3, insert --with leads of the main electrodes  
sealed with sealed portions-- after "axis".

Claim 1, line 7, insert -- is formed of a metal substrate  
and-- before "is".

10 Claim 1, line 7, insert -- a light source fitting space  
for holding the sealed portions of the arc tube in a manner  
that allows heat from the arc tube to be conducted to the  
reflector is formed,-- after "that".

- 15 (2) Claim 1, line 1, change "A light source device" to --  
An enclosed light source device --.

(3) Claim 2, line 1, change "The light source device" to  
-- The enclosed light source device --.

- 20 (4) Claim 5, change to --The enclosed light source device  
according to Claim 1 or 2, wherein a luminance equalization  
means for equalizing a surface luminance of the light beams  
by shaping light that is emitted from the arc tube and reaches  
the condensed spot after reflection by the first reflector  
25 portion and the second reflector portion or after condensation

by the lens, into a designated pattern and by mixing by multiple reflection is integrally provided at a front end of the reflector, forming an enclosed structure of the reflector--.

5 (5) Claim 6, change to --The enclosed light source device according to Claim 1, 2 or 5, wherein the reflector is formed of an aluminum substrate, a layer for converting an infrared component into heat is formed on a reflecting surfaces of the first reflector portion and the second reflector portion,  
10 a dielectric reflection multi-coating is formed over the layer for heat conversion with a flattening layer provided in-between, so that visible light rays reach the predetermined condensed spot--.

15 (6) Claim 7, change to --The enclosed light source device according to Claim 1, 2, 5 or 6, wherein the luminance equalization means has a cylindrical configuration and is formed of a metal substrate of the same material as the reflector, and an interior side of the metal substrate of the luminance  
20 equalization means is formed with a layer for converting an infrared component into heat, a flattening layer on the layer for heat conversion and a dielectric reflection multi-coating over the flattening layer--.

25 (7) Claim 8, change to --The enclosed light source device

according to any one of Claims 1, 2, 5 to 7, wherein sealed portions that seal the leads of the main electrodes are formed on both sides of the light generation point of the arc tube, and heat radiation members are arranged between the sealed portions and the reflector--.

5

(8) Claim 9, change to -- The enclosed light source device according to any one of Claims 1, 2, 5 to 8, wherein the reflector has a separable structure such that it can be separated at a boundary containing the electrode axis of the arc tube into a first reflector part that forms the first reflector portion and a second reflector part that forms the second reflector portion, and a light source fitting groove in which the sealed portions of the arc tube are arranged is formed in a separated face of the separable structure--.

10

15

(9) Claim 10, line 1, change "The light source device" to -- The enclosed light source device --.

(10) Claim 11, line 1, change "The light source device" to -- The enclosed light source device --.

20

(11) Claim 12, lines 1-2, change "the light source device" to -- the enclosed light source device --.

25

6. List of the appended documents:

- (1) Amended Claims: Pages 50-52, 52/1, 52/2

One copy for each

## CLAIMS

1. (Amended) An enclosed light source device comprising:  
an arc tube having a pair of main electrodes arranged on one  
electrode axis with leads of the main electrodes sealed with  
sealed portions; and a reflector for reflecting an outgoing  
light emitted from the arc tube and emitting the reflected  
light to the front, the electrode axis of the main electrodes  
being arranged to cross a light axis of the outgoing light,  
wherein the reflector is formed of a metal substrate and is  
constructed so that a light source fitting space for holding  
the sealed portions of the arc tube in a manner that allows  
heat from the arc tube to be conducted to the reflector is  
formed, a first reflector portion formed with a spherical  
surface centered at a light generation point of the arc tube  
is formed on a rear side from the arc tube as a boundary,  
a second reflector portion formed with an ellipsoid is formed  
in front of the boundary of the arc tube, and the outgoing  
light emitted from the arc tube is reflected by the first  
and second reflector portions so that the reflected light  
reaches a predetermined condensed spot; and

a lens that condenses the outgoing light emitted from  
the arc tube to other than the second reflector portion and  
brings the condensed outgoing light to the predetermined  
condensed spot and consists of a glass material that will

**AMENDED SHEETS**

not deteriorate under a high-temperature atmosphere in a vicinity of the arc tube is provided inside the second reflector portion.

5        2. (Amended)    The enclosed light source device according to Claim 1, wherein the lens is positioned so that a principal point thereof is located on the optical axis while a periphery of the lens is located at a position at which, of the outgoing light beams emitted forwards from the arc tube, the light  
10       beam illuminating a vicinity of an opening of the second reflector portion intersects the light beam that is reflected at an innermost position of the second reflector and brought to the condensed spot.

15       3.

4.

20       5. (Amended)    The enclosed light source device according to Claim 1 or 2, wherein a luminance equalization means for equalizing a surface luminance of the light beams by shaping light that is emitted from the arc tube and reaches the condensed spot after reflection by the first reflector portion and the second reflector portion or after condensation by the lens,  
25       into a designated pattern and by mixing by multiple reflection

**AMENDED SHEETS**

is integrally provided at a front end of the reflector, forming an enclosed structure of the reflector.

5 6. (Amended) The enclosed light source device according to Claim 1, 2 or 5, wherein the reflector is formed of an aluminum substrate, a layer for converting an infrared component into heat is formed on a reflecting surfaces of the first reflector portion and the second reflector portion, a dielectric reflection multi-coating is formed over the layer  
10 for heat conversion with a flattening layer provided in-between, so that visible light rays reach the predetermined condensed spot.

15 7. (Amended) The enclosed light source device according to Claim 1, 2, 5 or 6, wherein the luminance equalization means has a cylindrical configuration and is formed of a metal substrate of the same material as the reflector, and an interior side of the metal substrate of the luminance equalization means is formed with a layer for converting an infrared  
20 component into heat, a flattening layer on the layer for heat conversion and a dielectric reflection multi-coating over the flattening layer.

25 8. (Amended) The enclosed light source device according to any one of Claims 1, 2, 5 to 7, wherein sealed portions

**AMENDED SHEETS**



that seal the leads of the main electrodes are formed on both sides of the light generation point of the arc tube, and heat radiation members are arranged between the sealed portions and the reflector.

5

9. (Amended) The enclosed light source device according to any one of Claims 1, 2, 5 to 8, wherein the reflector has a separable structure such that it can be separated at a boundary containing the electrode axis of the arc tube into a first reflector part that forms the first reflector portion and a second reflector part that forms the second reflector portion, and a light source fitting groove in which the sealed portions of the arc tube are arranged is formed in a separated face of the separable structure.

10

15

10. (Amended) The enclosed light source device according to any one of Claims 1, 2, 5 to 9, wherein the reflector has a separable structure such that it can be separated along a plane parallel to the optical axis.

20

11. (Amended) The enclosed light source device according to Claim 8, wherein the reflector is grounded and an annular auxiliary electrode that encloses a proximal end side of the sealed portion of the arc tube is provided and the auxiliary electrode is electrically connected to the reflector.

25

**AMENDED SHEETS**

12. A video display apparatus in which the enclosed light source device according to any one of Claims 1, 2, 5 to 11 is used.